CHAPTER 1

INTRODUCTION TO SOUND-POWERED TELEPHONES

LEARNING OBJECTIVES

Learning objectives are stated at the beginning of each chapter. These learning objectives serve as a preview of the information you are expected to learn in the chapter. By successfully completing the nonresident training course (NRTC) for this training manual (TRAMAN), you indicate you have met the objectives and have learned the information.

Upon completing this chapter, you should be able to do the following:

- *Explain the fundamentals of sound-powered telephone communications.*
- *Apply the phonetic alphabet and the Navy's standard pronunciation of numerals.*

OPERATION OF SOUND-POWERED TELEPHONES

Sound-powered telephones are just what the name implies. They are telephones powered by the sound pressure of your voice rather than batteries or an electrical power source. If your phones work properly, speaking in a strong, clear voice generates enough current to carry your voice to all other phones on the circuit.

When you speak into the mouthpiece, the sound waves of your voice cause a diaphragm to vibrate. The vibrations are transferred from the diaphragm through a drive rod to an armature centered in a wire coil. The current then is transmitted to a receiver (the earpiece), where the process is reversed. The person at the other end of the circuit hears the sounds you transmitted.

The earpiece, though shaped differently from the mouthpiece, also contains a diaphragm, an armature, and a coil. The earpiece and the mouthpiece can be used interchangeably; you can talk into the earpiece or hear through the mouthpiece. This feature is important to remember should a failure occur in one of the pieces. It is also important because you need to be aware that an earpiece turned away from your head will pick up distracting noises.

Q1. What is the power source of the sound-powered telephone system?

Q2. How do yon generate enough current to carry your voice to all other phones in the circuit?

Q3. What action should you take if your mouthpiece fails?

IMPORTANCE OF SOUND-POWERED TELEPHONES

Communications are of vital importance to a shipboard organization. The most important interior communications system used aboard ship is the sound-powered telephone. Without this system to exchange accurate, up-to-date information, the ship would be unable to function properly and achieve its mission.

Can you think of an instance in your past when you were given inaccurate information or you received it too late to be useful? What kind of problems did that cause you? Imagine, then, commanding officers trying to lead their warships during a

battle without a means of receiving or transmitting current, reliable information.

Current, reliable information yields good decisions in both routine and emergency operations. This information must be passed over sound-powered telephone circuits from damage control central, engineering spaces, weapons control, after steering, radio central, lookouts, the combat information center, the signal bridge, and various other stations aboard the ship.

You, as the phone talker, play a vital role that affects the safety of your shipmates and the overall performance of your ship. The timely and efficient exchange of accurate information will happen only if you know your job and execute it to the best of your ability. To do that, you should use standard phrases and common terminology when relaying information; in addition, you should practice the proper care of your phones.

Q4. Why is the sound-powered phone the most important interior communications system aboard ship?

Q5. What kind of information must a commanding officer have to make good decisions during ship operations?

OPERATION OF SOUND-POWERED TELEPHONE CIRCUITS

The operation of a sound-powered telephone circuit involves a message originator, a control station, and anywhere from one to several phone talkers at different stations. Each one plays a distinct role in ensuring messages are transmitted properly.

THE MESSAGE ORIGINATOR

The message originator's choice of words is very important. For example, suppose you are the bridge sea and anchor detail phone talker. The officer of the deck (OOD) tells you to pass the following message: "Find out what gas turbines and diesel generators are in use." The officer of the deck, as the message originator, has used incorrect phraseology. You would have to

rephrase this message before sending it, possibly causing confusion and delay. The OOD should have phrased the message this way: "Main Control – Bridge. What gas turbines and diesel generators are on the line?"

If a message is phrased correctly, all you have to do is repeat it word for word over your phone. Repeating a message word for word also reduces the chance of transmitting the message incorrectly.

If you are originating the message, use correct terminology and phrase the message exactly the way you want it transmitted. If you are relaying the message, keep it as short as possible and ensure clarity by using specific terms.

Q6. Why does the message originator need to phrase the message exactly the way it is to be transmitted?

Q7. As a phone talker, you should transmit a message you receive from the originator in what way?

THE CONTROL STATION

One station on each circuit is designated the control station. It is the duty of the controller to know proper control procedures and to ensure that all stations on the circuit know he or she is the controller. The controller must act as the monitor for all circuit transmissions to enforce existing rules and regulations for good sound-powered telephone communications.

THE PHONE TALKER

Most of this manual discusses the operation of the sound-powered telephone from the standpoint of the phone talker. As a phone talker, you must transmit a message exactly as it is given to you. Therefore, the originator of the message must give you the exact message he or she wishes to transmit. As a phone talker, you should observe the following general rules:

- Always be alert. Pay close attention to the messages transmitted over the phone by the officer or petty officer in charge of the station (message originator). If possible, take notes when other stations on the circuit relay messages to you. Do not engage in idle conversation on the phone. Keep your mind on your assigned duty.

- Test the circuit regularly. A line may malfunction as a result of damage, faulty phones, or other equipment failure. Unless you test the line periodically, you may be unaware of the malfunction and fail to receive an important message.

- Do not use the normal pronunciation of alphabetic letters when speaking over the phone. It is easy to confuse the sounds of certain letters, such as bee and dee or cee and zee. To avoid such confusion, the Navy requires that you use phonetic equivalents of letters instead of the letters themselves. However, you may use the alphabetic pronunciation of abbreviations and acronyms that are easily understood.

Q8. What station is in charge of each circuit?

Q9. Why should you test the circuit periodically?

Q10. Why can't you use alphabetic letters as references?

USE OF THE PHONETIC ALPHABET

The Navy has used a phonetic alphabet for many years. At times, it has changed some of the phonetic equivalents to words that might more quickly bring to mind the letters they represent. The various North Atlantic Treaty Organization (NATO) countries adopted the following phonetic alphabet as a means of overcoming the many language difficulties. Each word is accented on the capitalized syllable.

STANDARD PHONETIC ALPHABET		
LETTER	**EQUIVALENT**	**SPOKEN**
A	ALFA	AL fah
B	BRAVO	BRAH voh
C	CHARLIE	CHAR lee
D	DELTA	DELL ta
E	ECHO	ECK oh
F	FOXTROT	FOKS trot
G	GOLF	GOLF
H	HOTEL	hoh TELL
I	INDIA	IN dee ah
J	JULIETT	JEW lee ett
K	KILO	KEY loh
L	LIMA	LEE mah
M	MIKE	MIKE
N	NOVEMBER	no VEM ber
O	OSCAR	OSS cah
P	PAPA	pah PAH
Q	QUEBEC	kay BECK
R	ROMEO	ROW me oh
S	SIERRA	see AIR rah
T	TANGO	TANG go
U	UNIFORM	YOU nee form
V	VICTOR	VIK tah

STANDARD PHONETIC ALPHABET		
LETTER	EQUIVALENT	SPOKEN
W	WHISKEY	WISS key
X	XRAY	ECKS ray
Y	YANKEE	YANG key
Z	ZULU	ZOO loo

You should memorize the phonetic alphabet to express individual letters and spell words that might be misunderstood. The Navy's standard pronunciation of numerals (listed in the following section) is used with the phonetic alphabet to correctly enunciate numbers when you are making telephone reports.

PRONUNCIATION OF NUMERALS

In addition to the use of the phonetic alphabet, the Navy has established standard pronunciations for numerals. The following list shows how you should pronounce numerals:

NUMERALS	PRONOUNCED
0	ZERO
1	WUN
2	TOO
3	TREE
4	FO-WER
5	FIFE
6	SIX
7	SEVEN
8	ATE
9	NINER

REPORTING BEARINGS

The direction of an object from your ship is called the bearing. Bearings are measured in degrees clockwise around a circle from 000° to 360°.

The ship's bow is the reference point for relative bearings. For example, a sailboat dead ahead would bear 000°, a lighthouse off the stern would bear 180°, a ship directly off the port beam would bear 270°, and so on.

True or geographic north is the reference point for true bearings; they are read directly from the gyro compass or a gyro repeater.

The magnetic North Pole is the reference point for magnetic bearings; they can be read from the ship's magnetic compass.

Lookouts report objects in degrees of relative bearing. Each bearing consists of three digits, which the lookout speaks digit by digit as follows:

BEARING	SPOKEN AS
015°	ZERO WUN FIFE
039°	ZERO TREE NINER
053°	ZERO FIFE TREE
082°	ZERO ATE TOO
124°	WUN TOO FO-WER
187°	WUN ATE SEVEN
226°	TOO TOO SIX
250°	TOO FIFE ZERO
295°	TOO NINER FIFE
337°	TREE TREE SEVEN

REPORTING RANGES

Ranges (distance in yards) are reported digit by digit, except for exact multiples of hundreds and thousands, as follows. Speak the words *hundred* and *thousand* as you usually would.

YARDS	SPOKEN AS
50	FIFE ZERO
90	NINER ZERO
150	WUN FIFE ZERO
500	FIFE HUNDRED
1500	WUN FIFE HUNDRED
2000	TOO THOUSAND
4350	FO-WER TREE FIFE ZERO
8000	ATE THOUSAND
15000	WUN FIFE THOUSAND
19600	WUN NINER SIX HUNDRED

Q11. Why did the armed forces of various NATO countries adopt the phonetic alphabet?

Q12. What do you call the direction of an object from your ship?

Q13. What is the reference point for relative bearings?

Q14. Ranges are spoken digit by digit except for what value(s)?

REPORTING POSITION ANGLES

An object located in the sky is reported by its bearing and position angle. The position angle of an aircraft is its height in degrees above the horizon as seen from the ship. The horizon is

0°, and directly overhead is 90°. Position angles are reported in one or two digits and spoken as a whole – not digit-by-digit. The words *position angle* are always spoken before the numerals.

POSITION ANGLE	SPOKEN AS
0	POSITION ANGLE ZERO
10	POSITION ANGLE TEN
20	POSITION ANGLE TWENTY
50	POSITION ANGLE FIFTY
75	POSITION ANGLE SEVENTY FIFE
90	POSITION ANGLE NINETY

The following are examples of initial lookout reports that include bearings, ranges, and position angles:

"Bridge – Forward Lookout. Surface contact bearing tree fife zero, ate thousand yards, moving left to right slowly."

"Bridge – Aft Lookout. F-18 jet fighter bearing wun six zero, position angle ten, moving right to left very rapidly."

Chapter 21 of *Basic Military Requirements,* NAVEDTRA 12043, and *Lookout Training Handbook,* NAVEDTRA 12968,

cover the duties of a lookout and the reporting of bearings, ranges, and position angles.

Q15. What is the maximum position angle at which you can report an aircraft?

Q16. How would you report an aircraft that is 40 degrees above the horizon?

SUMMARY

As a sound-powered telephone talker, you serve as the central nerve of the ship. Without you and the other phone talkers who send and receive information between the various stations, the ship cannot operate efficiently and safely.

The quality of the information transmitted depends entirely on how well you perform your job. Become familiar with the phone talker rules and procedures discussed in this chapter. Memorize the phonetic alphabet; the pronunciation of numerals; and the reporting procedures for bearings, ranges, and position angles. Make it your goal to be the best phone talker on the ship.

ANSWERS TO EMBEDDED QUESTIONS

A1. *The sound pressure of your voice.*

A2. *Speak in a strong, clear voice.*

A3. *Talk through the earpiece.*

A4. *It allows an exchange of accurate, up-to-date information that enables the ship to achieve its mission.*

A5. *Reliable, accurate information.*

A6. *The phone talker won't have to rephrase the message, which reduces the chance of an unintended meaning being transmitted.*

A7. *Word for word, exactly as you received it.*

A8. *The Control Station.*

A9. *You might miss an important message.*

A10. *It is easy to confuse the sounds of certain letters.*

A11. *To overcome many language difficulties.*

A12. *Bearing.*

A13. *The ship's bow.*

A14. *Exact multiples of hundreds and thousands are spoken as you usually would.*

A15. *90°.*

A16. *Position angle forty.*